Claims

1. A method for detecting nucleic acid oligomer hybridization events by fluorescence quenching, comprising the steps

   a) providing a modified surface, the modification comprising the attachment of at least one type of modified nucleic acid oligomers, wherein the nucleic acid oligomers (201) are modified by attaching of at least one type of fluorophore (102),
   b) providing a sample having nucleic acid oligomers,
   c) bringing the sample into contact with the modified surface,
   d) adjusting a defined concentration of salt in the solution surrounding the modified nucleic acid oligomers, wherein a concentration of salt greater than 0.5 mol/l is set
   e) detecting the fluorescence of the fluorophore (102),
   f) comparing the fluorescence intensity detected in step e) with reference values

2. The method according to claim 1, wherein after step a) and before step c) the steps

   b_3) adjusting a defined concentration of salt in the solution surrounding the modified nucleic acid oligomers, wherein the same concentration of salt being used as in step d) and

   b_4) first detection of the fluorescence of the fluorophore (102)

   are carried out and as step c) the step

   c) adjusting stringency conditions for the hybridization and bringing the sample into contact with the modified surface

   is carried out and in step f) the values obtained in step e) are compared with the reference values obtained in step b_4).

3. The method according to claims 1 or 2, wherein as step a) the step

a) providing a modified surface, the modification comprising the attachment of at least two types of modified nucleic acid oligomers (201), the different types of modified nucleic acid oligomers (201) being bound to the surface in spatially substantially separate regions, wherein the nucleic acid oligomers (201) are modified by attachment of at least one type of fluorophore,

is carried out and before step c) the steps

b_1) adding one type of nucleic acid oligomer to the sample, the type of nucleic acid oligomer being a binding partner having a high association constant of a type of modified nucleic acid oligomer bound to the surface in a specific region T_{100}, the nucleic acid oligomer being added in a quantity that is greater than the quantity of nucleic acid oligomers necessary to completely associate the modified nucleic acid oligomers of the T_{100} site,

b_3) adjusting a defined concentration of salt in the solution surrounding the modified nucleic acid oligomers, the same concentration of salt being used as in step d) and

b_4) first detection of the fluorescence of the fluorophore (102)

are carried out and as step c) the step

c) adjusting stringency conditions for the hybridization and bringing the sample into contact with the modified surface

is carried out and in step f) the values obtained in step e) are compared with the value obtained in step b_4) for the T_{100} region and with the reference values obtained in step b_4).

4. The method according to claim 3, wherein as step a) the step

a) providing a modified surface, the modification comprising the attachment of at least three types of modified nucleic acid oligomers (201), the differing types of modified

nucleic acid oligomers are bound to the surface in spatially substantially separate regions, at least one type of modified nucleic acid oligomer (201) being attached to the surface in a specific region T_0, and no binding partner having a high association constant to said modified nucleic acid oligomer being contained in the sample, wherein the nucleic acid oligomers are modified by attachment of at least one type of fluorophore (102),

is carried out and in step f) the values obtained in step e) are compared with the value obtained in step b_4) for the T_{100} region, with the value obtained in step b_4) for the T_0 region and with the reference values obtained in step b_4).

5. The method according to claim 3 or 4, wherein before step c) the step

b_2) adding of at least one additional type of nucleic acid oligomer to the sample, said type of nucleic acid oligomer not being contained in the sample provided in step b), and the nucleic acid oligomer exhibiting an association constant >0 to a type of modified nucleic acid oligomer that is bound to the surface in a specific region T_n, the nucleic acid oligomer being added in a quantity such that, after step c), n% of the modified nucleic acid oligomers in the T_n region are present in associated form

is carried out and in step f), the values obtained in step e) are compared with the value obtained in step b_4) for the T_{100} region, with the value obtained in step b_4) for the T_0 region , with the value obtained in step b_4) for the T_n region and with the reference values obtained in step b_4).

6. The method according to one of the preceding claims, wherein in step d) a concentration of salt between 0.5 and 10 mol/l, especially between 1 and 10 mol/l is set.

7. The method according to claim 6, wherein in step d) a concentration of salt between 0.5 and 3 mol/l, especially between 2 and 3 mol/l is set.

8. The method according to one of the preceding claims, wherein the modified nucleic acid oligomers comprise 3 to 70 bases, preferable 5 to 60 bases, particularly preferable 10 to 50 bases, more particularly preferable 12 to 40 bases.

9. The method according to one of the preceding claims, the modification of the surface comprising the attachment exclusively of nucleic acid oligomers.

10. The method according to one of claims 1 to 8, wherein the surface is additionally modified by attachment of a short-chained coadsorbate, especially a coadsorbate of chain length 1 to 30, preferable of chain length 1 to 20, particularly preferable of chain length 1 to 10, more particularly preferable of chain length 1 to 5.

11. A kit for carrying out a method according to claims 1 to 10, comprising a modified surface, the modification comprising the attachment of at least one type of modified nucleic acid oligomers, said nucleic acid oligomers being modified by the attachment of at least one type of fluorophore.